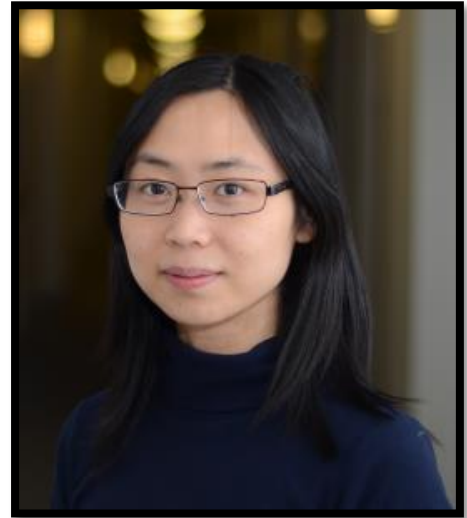


# EPSTEIN INSTITUTE SEMINAR ■ ISE 651

## Incentivizing Adherence for Treatment of Infectious Diseases

ABSTRACT - Premature cessation of antibiotic therapy (non-adherence) is common in long treatment regimens and can severely compromise health outcomes. In this talk, I discuss designing a schedule of incentive payments to induce socially-optimal treatment adherence levels in a setting where patient preferences for treatment adherence are heterogeneous and unobservable to a health provider. The novel elements of this problem stem from its institutional features: there is a single incentive schedule applied to all patients, incentive payments must be increasing in patients' adherence, and patients cannot be a priori prohibited from any given levels of adherence. I will discuss the development of models to design optimal incentives incorporating these features, which is also applicable in other problem contexts that share the same features. Finally, we will review a numerical study using representative data in the context of the tuberculosis epidemic in India. This study shows that this optimally-designed incentive schedule is generally cost-effective compared to a linear incentive benchmark.



**Dr. Sze-chuan Suen**

Assistant Professor  
Department of Industrial & Systems  
Engineering  
USC

**SPEAKER BIO** – Sze-chuan Suen is an assistant professor in the Daniel J. Epstein Department of Industrial and Systems Engineering at the University of Southern California. She received her PhD in the department of Management Science and Engineering from Stanford University in 2016. Her research interests include developing applied mathematical models to identify epidemiological trends and evaluating health policies to support informed decision-making. Her work in health policy modeling draws from a variety of techniques, including simulation, dynamic systems modeling, Markov decision processes, cost-effectiveness analysis, and decision analysis. Her previous work has examined the optimal management of tuberculosis, HIV, as well as chronic diseases.

Sze was a recipient of the INFORMS Pierskalla Best Paper Award in 2017, a finalist in 2019, and a finalist in the Junior Faculty Forum Paper Competition in 2019. Her work has been funded by the National Science Foundation and the National Institutes of Health, and she has participated in a modeling consortium funded by the Bill and Melinda Gates Foundation, among others. Additional information about her and her work is provided on her website: <https://szesuen.usc.edu/>.

**USC Viterbi**  
School of Engineering  
*Daniel J. Epstein Department of  
Industrial and Systems Engineering*

**TUESDAY, SEPTEMBER 15, 2020**

**3:30 PM – 4:50 PM**

ZOOM/ONLINE \*PLEASE EMAIL [OWH@USC.EDU](mailto:OWH@USC.EDU) FOR PASSWORD\*